10. Location-Specific Information

10.1. Overview

This chapter describes the status of the Illicit Discharge Elimination Program (IDEP) investigation for each of the five Phase I communities, respectively. Each section discusses the location of the investigations, the number of confirmed outfalls, specific information regarding each illicit discharge or connection found, and the status of the field investigations. Maps and further IDEP information can be found in Appendix E. This chapter is organized as follows:

Section 10.2. describes location-specifics for Ann Arbor
Section 10.3. describes location-specifics for Flint
Section 10.4. describes location-specifics for Grand Rapids
Section 10.5. describes location-specifics for Sterling Heights
Section 10.6. describes location-specifics for Warren

10.2. City of Ann Arbor – University Region/Brighton Transportation Service Center

Ann Arbor is located in the Southeastern portion of Michigan's Lower Peninsula, west of Detroit in Washtenaw County. Within the Ann Arbor city limits, MDOT facilities include I-94, I-94 B/C, M-14, and parts of U.S. 23. These MDOT roads are managed by the University Region and serviced by the Brighton Transportation Service Center (TSC).

Figure 10-1 represents the 45 confirmed outfalls located along these routes.

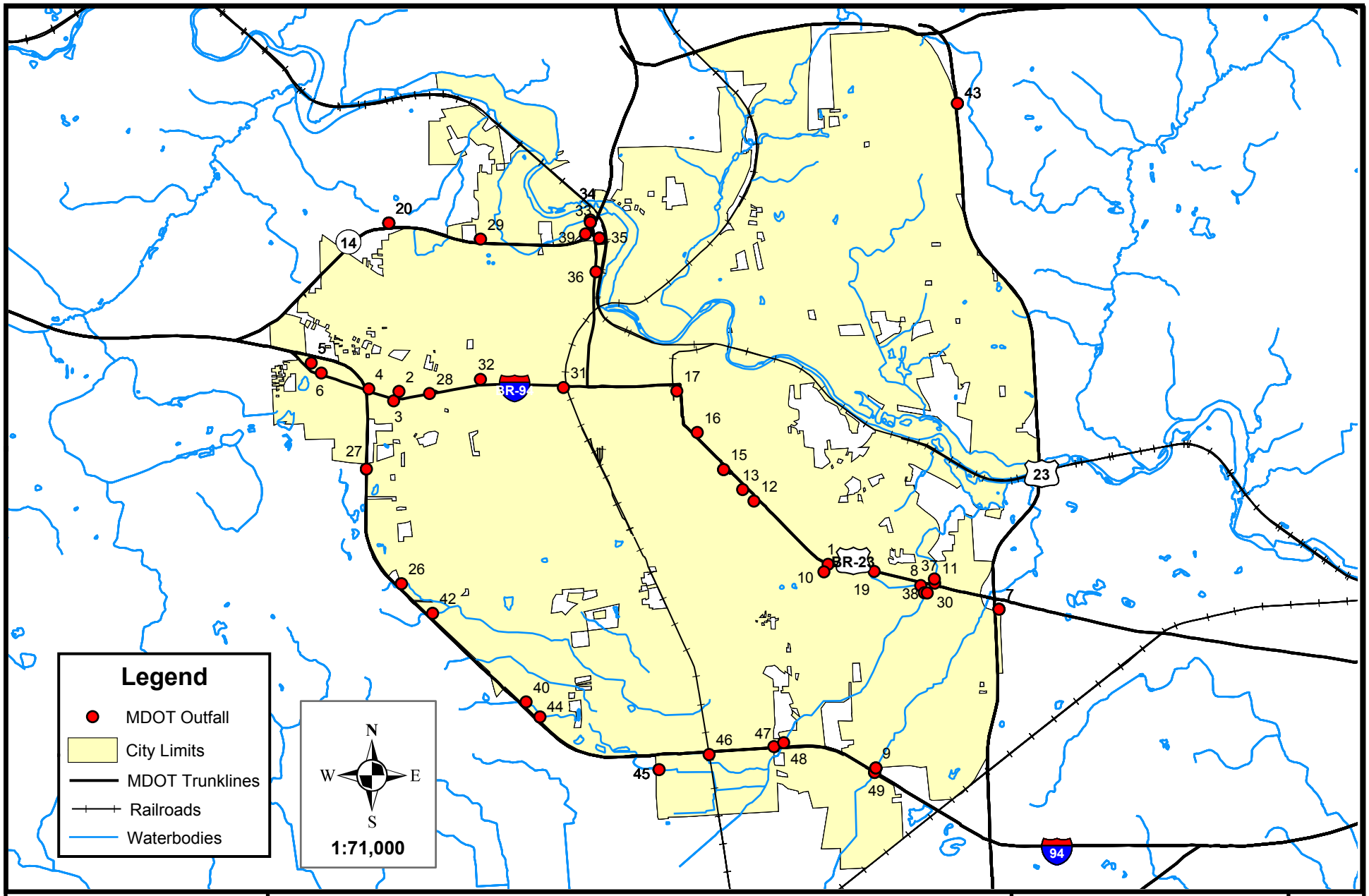
Following the initial completion of the fieldwork a review of the data was conducted. This review identified an outfall (81101-35-A000N), which showed potential signs of an illicit connection. Follow-up work is currently being conducted. In Ann Arbor, 100% of the initial fieldwork has been completed and follow up work is ongoing for one outfall.

The Metropolitan Planning Organization (MPO) that the MDOT coordinates events with in Ann Arbor is the Southeast Michigan Council of Governments (SEMCOG).

Contact information for the local community regarding storm water issues and concerns are included in Table 10-1.

Table 10-1 Contact Information for Ann Arbor

Name	Organization	Phone	Email
Seth Phillips	MDOT Storm Water Program Coordinator	(517) 373-1908	phillips@michigan.gov
Bob Batt	MDOT University Region Storm Water Coordinator	(517) 750-0410	battb@michigan.gov
Craig Hupy	City of Ann Arbor	(734) 994-1760	chupy@ci.ann-arbor.mi.us
Malama Chock	University of Michigan	(734) 936-1920	chock@umich.edu
Laura Rubin	Huron River Watershed Council	(734) 769-5123	lrubin@hrwc.org
Joan Riley	Ann Arbor Public Schools	N/A	N/A
Harry Sheehan	Washtenaw Country Drain Commissioner's Office	(734) 994-2525	sheehanh@co.washtenaw.mi.us



TETRA TECH MPS

DESIGNED: J. Herrmann

DATE: 9-15-03

MDOT Michigan Department of Transportation

Base map data obtained from the Michigan Center of Geographic information. Outfall locations taken with a handheld GPS unit. Accuracy is +- 10 m.

Michigan Department of Transportation

City of Ann Arbor
Storm Sewer Outfall Map

FIGURE
10-1

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Table 10-2 City of Ann Arbor Outfall Information

Map ID	ID	Latitude	Longitude	Receiving Water Body	Outfall Size (mm)
1	81072-25-A000N	42.25903	-83.71067	Municipal Sewer	610
2	81101-20-A000N	42.28115	-83.77908	Name Unknown	686
3	81101-15-A000N	42.28003	-83.77997	Municipal Sewer	305
4	81101-10-A000N	42.28155	-83.78394	Municipal Sewer	762
5	81101-07-A000N	42.28485	-83.7931	Municipal Sewer	533
6	81101-05-A000N	42.28362	-83.79152	Name Unknown	305
7	81074-05-A000N	42.25306	-83.68333	Swift R Drain	610
8	81072-40-A000N	42.25618	-83.69585	Municipal Sewer	1470x2310
9	81062-25-A000N	42.23444	-83.70389	Name Unknown	N/A
10	81072-30-A000N	42.25813	-83.71137	Name Unknown	1524
11	81072-55-A000N	42.25642	-83.69357	Name Unknown	305
12	81072-20-A000N	42.26685	-83.72235	Municipal Sewer	610
13	81072-18-A000N	42.26827	-83.72412	Municipal Sewer	381
14	81072-16-A000N	42.27072	-83.72708	Municipal Sewer	559
15	81072-15-A000N	42.27072	-83.72708	Municipal Sewer	610
16	81072-10-A000N	42.27527	-83.73118	Municipal Sewer	914
17	81072-05-A000N	42.2803	-83.73428	Municipal Sewer	762
18	81062-30-A000N	42.23444	-83.70389	Name Unknown	N/A
19	81072-35-A000N	42.25803	-83.70328	Name Unknown	1219
20	81105-05-A000N	42.30139	-83.78	Name Unknown	1829
21	81101-30-A010N	42.280	-83.755	Municipal Sewer	500
26	81062-03-A000N	42.25808	-83.7795	Name Unknown	1067
27	81062-02-A000N	42.27195	-83.78465	Municipal Sewer	610
28	81101-22-A000N	42.2808	-83.77417	Municipal Sewer	305
29	81105-10-A000N	42.29917	-83.76527	Name Unknown	305
30	81072-50-A000N	42.25527	-83.69482	Name Unknown	305
31	81101-35-A000N	42.28108	-83.75255	Allen Creek	610
32	81101-25-A000N	42.28234	-83.7659	Municipal Sewer	559
33	81073-15-A000N	42.30083	-83.7475	Name Unknown	457
34	81073-10-A000N	42.30111	-83.7475	Name Unknown	305
35	81073-05-A000N	42.29889	-83.74611	Name Unknown	610
36	81073-04-A000N	42.29487	-83.7468	Huron River	914
37	81072-60-A000N	42.25692	-83.6936	Name Unknown	610
38	81072-45-A000N	42.2553	-83.6953	Name Unknown	381
39	81105-15-A000N	42.29945	-83.74834	Huron River	457
40	81062-05-A000N	42.2435	-83.75993	Name Unknown	1850x3430
41	81062-20-A000N	42.2339	-83.7041	Swift R Drain	2400
Map	ID	Latitude	Longitude	Receiving Water	Outfall Size (mm)

ID				Body	
42	81062-04-A000N	42.25442	-83.77462	Name Unknown	1372
43	81074-10-A000N	42.31389	-83.68778	Name Unknown	1067
44	81062-06-A000N	42.24165	-83.75777	Name Unknown	457
45	81062-07-A000N	42.23495	-83.73882	Name Unknown	1700x5500
46	81062-08-A000N	42.2366	-83.73068	Name Unknown	N/A
47	81062-09-A000N	42.23733	-83.7202	N/A	N/A
48	81062-10-A000N	42.23778	-83.71861	Name Unknown	4100
49	81062-15-A000N	42.2339	-83.7041	Swift R Drain	2400

10.3. Flint – Bay Region/Davidson TSC

Flint is located in the Eastern Central portion of Michigan's Lower Peninsula in Genesee County. The TSC responsible for this area is located in Davison, with the region office located in Saginaw. The MDOT facilities that are located within Flint's municipal boundaries are M-54, I-475, I-69, M-21, and a small portion of U.S. 23.

There are 93 confirmed outfalls in Flint as shown in Figure 10-8. Out of these confirmed outfalls, six illicit connections or discharges have been identified to date. Each of these illicit connections or discharges is described in more detail below including the location, a description of the problem the responsible party, and follow up actions that have been taken. Fieldwork is 100 percent completed in Flint as of November 8, 2002.

25072-00-A000N (Illicit Connection # 1)

Location — This outfall discharges drainage from M-54 and the City of Flint into Thread Creek just west of M-54.

Description of Problem — During field investigation, dry weather flow was found discharging into the MDOT system from a 48-inch pipe belonging to the City of Flint. The pipe connects to the MDOT system just west of the Dort Highway and Atherton Road intersection at point A100N. Sampling showed elevated levels of *E. coli*.

Responsible Party — City of Flint

Follow up Actions Taken — The City of Flint was notified on August 23, 2002. To date the City of Flint has not corrected this problem.

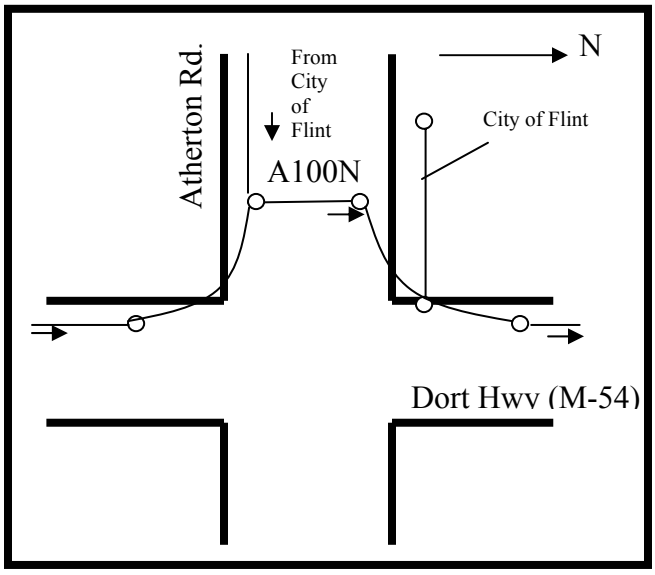


Figure 10-2 Outfall Number 25072-00-A000N in the City of Flint

25072-00-A000N (Illicit Connection #2)

Location This outfall discharges drainage from M-54 and the City of Flint into Thread Creek just west of M-54

Description of Problem An illicit connection was identified immediately south of manhole 25072-00-A150N. The illicit connection was characterized by high total organic carbon (TOC) and chlorine odors. The line was televised to confirm the connection and determine the source. The televising results suggested that the pipe belonged to Fitness USA.

Responsible Parties MDOT, MDEQ, and Fitness USA

Follow up Actions Taken The landowner was notified of the illicit connection by MDOT. The landowner contacted the MDOT and stated that they felt the problem was a leak from the City's system. The problem was turned over to the MDEQ for enforcement. The facility has recently burned down due to a fire and the status of the business is unknown.

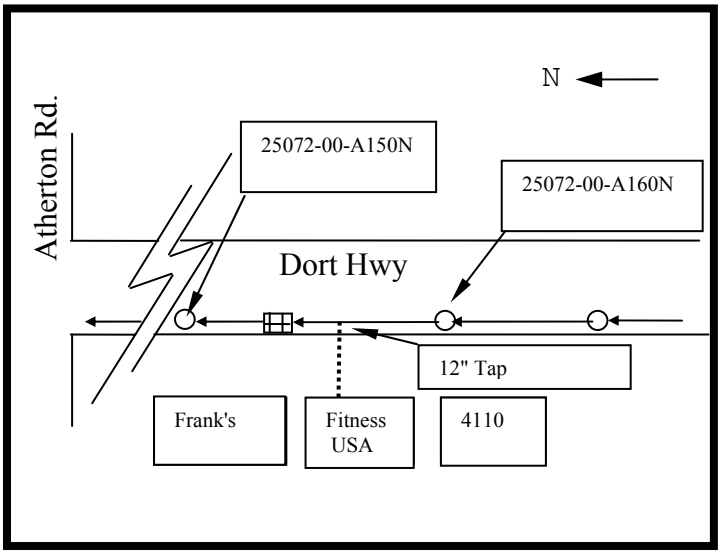


Figure 10-3 Outfall Number 25072-00-A000N in the City of Flint

25072-05-A000N

Location	This outfall discharges drainage from M-54 and the City of Flint into Thread Creek just east of M-54
Description of Problem	During investigations, dry weather flow was observed. A portion of the flow is discharged into the MDOT system via a 15-inch pipe at point 25072-05-A090N (see map). Sampling showed elevated levels of fluoride, *E. coli*, detergents, and TOC.
Responsible Party	City of Flint
Follow up Actions Taken	The City of Flint was notified on October 9, 2002. The City of Flint identified the source and has removed the illicit connection. Follow-up investigation has not been conducted.

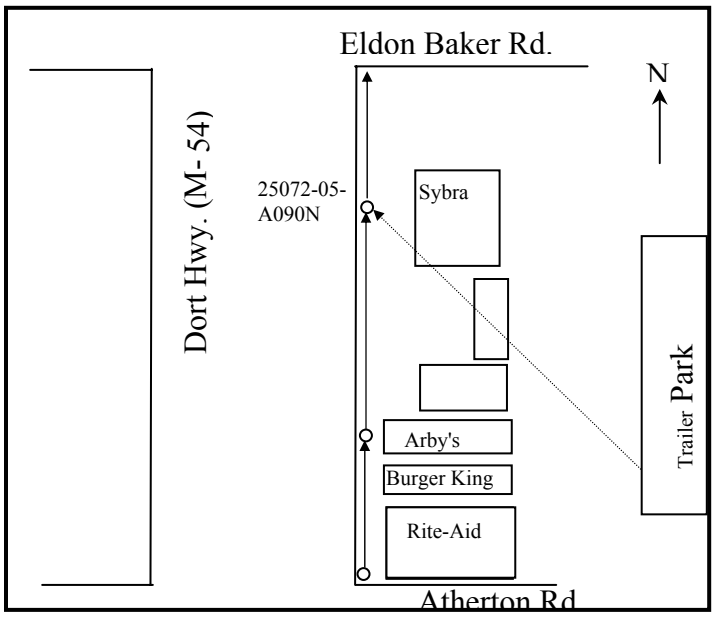


Figure 10-4 Outfall Number 25072-05-A000N in the City of Flint

25072-24-A000N

Location This outfall discharges into the south side of Robinson Drain at Dort Highway (see Figure 10-5).

Description of Problem Sampling revealed elevated levels of fluoride, TOC, and detergents at the outfall. The pollutants were tracked upstream to a direct connection to the MDOT right-of-way (ROW) on Dort Highway south of Kent Street. The connection is a 12-inch pipe flowing from the southeast and apparently originating from 1945 Dort Highway. The building is labeled I & K Distributing/H&E Tires.

Responsible Parties MDOT, MDEQ, and I & K Distributing/H&E Tires

Follow-up Actions Taken The landowner was sent a letter on September 26, 2002. The landowner met with the MDOT to inspect their system. The landowner felt that the source of the problems was not originating from their property. This has not bee confirmed. The problem since has been turned over to the MDEQ for enforcement action.

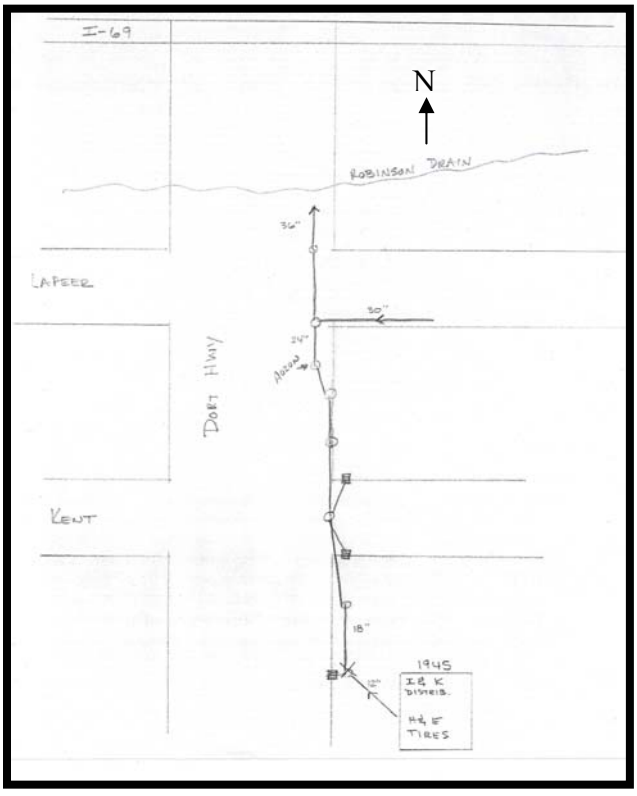


Figure 10-5 Outfall Number 25072-24-A000N in the City of Flint

25072-51-A000N

Location — The outfall is a 24-inch concrete pipe exiting the MDOT system at the intersection of Dort Highway (M-54) and Woodrow Street, and discharging into the City of Flint's municipal storm sewer system (see Figure 10-6).

Description of Problem — The 24-inch pipe collects drainage along Dort Highway between Delaware and Woodrow Streets and contains intermittent flow. The flow tested positive for detergent, had elevated fluoride, and a low level of hardness. It was concluded that the intermittent flow was coming from the Burns & Sons Collision Shop. On September 18, 2001, it was witnessed that runoff from a paved area used routinely for washing cars (on Burns & Sons Collision property) drains by surface flow to a nearby catch basin that connects into the MDOT storm water system. There are soap stains on the concrete showing the path of the wash water when this paved area is frequently used to wash cars.

Responsible Parties — MDOT, MDEQ, and Burns and Sons Collision Shop

Follow up Actions Taken — The landowner was notified of the illicit connection by MDOT. The landowner did not take action and the problem was turned over to the MDEQ.

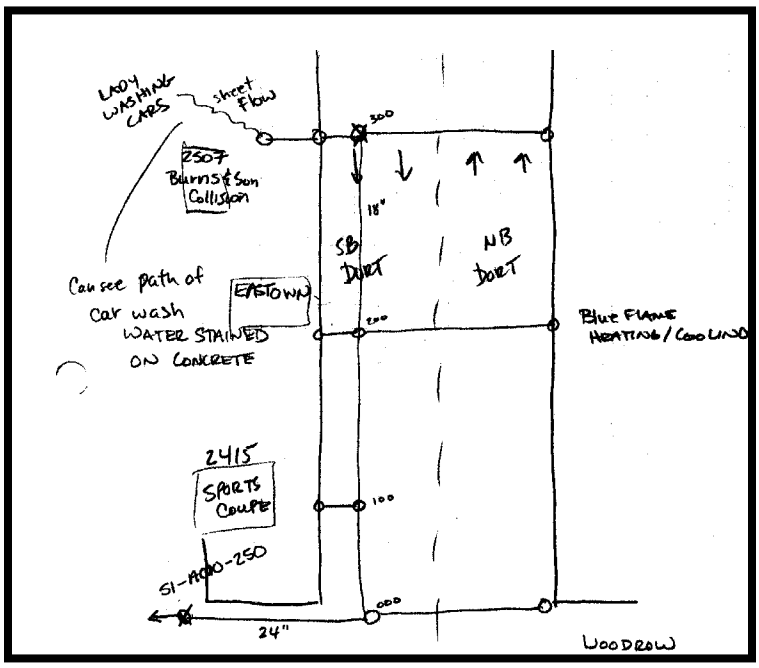


Figure 10-6 Outfall Number 25072-51-A000N in the City of Flint

25072-70-A000N

Location	The outfall discharges storm water, collected from Dort Highway, off of the MDOT ROW (see Figure 10-7).
Description of Problem	Dry weather flow was present from the line to the north of the outfall, but exists because of a broken water valve. Flow from the pipe to the west of the outfall was also present. Testing of water samples from this pipe showed elevated TOC. The source appears to be Environmental Rubber Recycling LLC.
Responsible Parties	MDOT, MDEQ, and Environmental Rubber Recycling LLC.
Follow up Actions Taken	The landowner was notified of the illicit connection by MDOT. The landowner did not take action and the problem was turned over to the MDEQ.

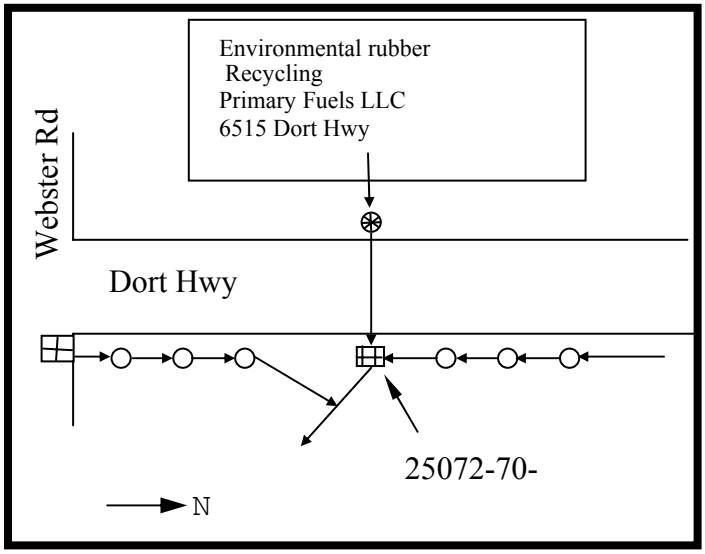


Figure 10-7 Outfall Number 25072-70-A000N in the City of Flint

During the reporting period, ownership of Saginaw Highway was turned over to the City of Flint. MDOT notified the City of the following outfalls and the illicit connections to those outfalls. These problems are now being pursued by the City of Flint.

25052-50-A000N

Location	This outfall is located west of Saginaw Highway on 12th Street.
Description of Problem	Sampling revealed high *E. coli* and fluoride values at this outfall. Further investigation found an illicit connection just east of the outfall at the intersection of Saginaw Highway and 12th Street. In the catch basin at the southwest corner of the intersection a 6-inch line taps into the system.
Responsible Party	City of Flint
Follow up Actions Taken	A letter to the City of Flint notifying them of the illicit connections was sent on October 9, 2002.

25052-30-A000N

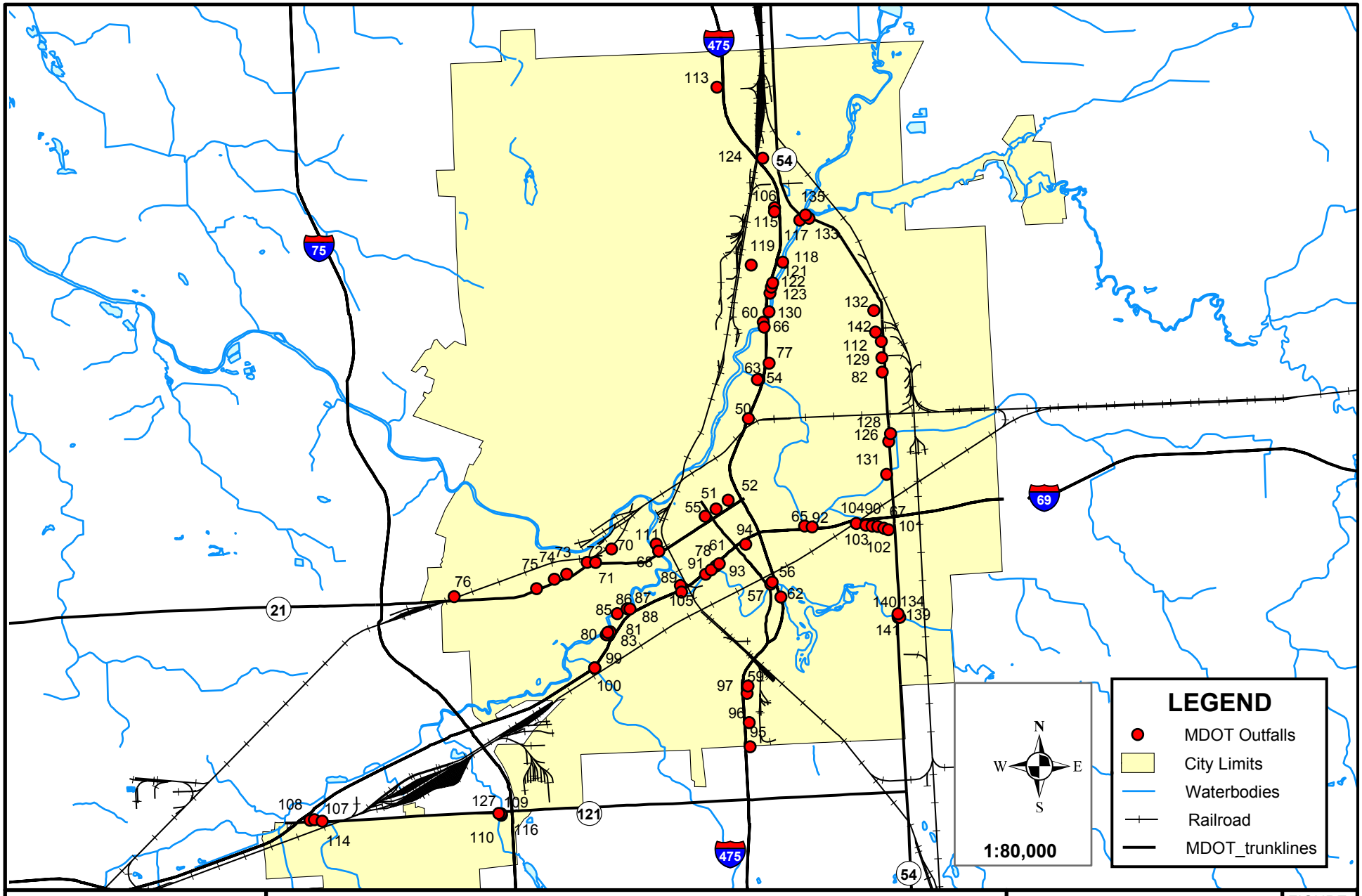
Location	This outfall discharges into Thread Creek on the southwest side of Saginaw Highway
Description of Problem	High levels of fluoride, TOC, and *E. coli* were recorded at this outfall. Soapsuds were also present at this site. An unidentified 8-inch line was located in a catch basin at the northeast corner of Saginaw Highway and Barton Drive. Although it appeared that Diamond Cleaners at 2147 Saginaw Highway was taping into this line, this was unable to be confirmed by visual observations. The 8-inch line tapping into the system was televised on December 21, 2001. The results showed that a 4-inch pipe was the only connection to the 8-inch line.
Responsible Party	City of Flint
Follow-up Actions Taken	A letter to the City of Flint notifying them of the illicit connections was sent on October 9, 2002.

The MPO that MDOT coordinates events with in Flint is the Genesee County Metropolitan Planning Commission.

Contact information for the local community regarding storm water issues and concerns are included in Table 10-3.

Table 10-3 Contact Information for Flint

Name	Organization	Phone	Email
Seth Phillips	MDOT Storm Water Program Coordinator	(517) 373-1908	phillips@michigan.gov
Cary Rouse	MDOT Bay Region Storm Water Coordinator	(517) 754-0878	rousec@michigan.gov
Mike Brown	City of Flint	(810) 766-7210	N/A
Brad Hill	City of Flint	(810) 766-7210	N/A
Richard Hill-Rowley	University of Michigan-Flint	(810) 766-6608	rhr@umich.edu
Jeff Mansour	Flint River Watershed Coalition	(810) 766-6647	jmansour@umich.edu



TETRA TECH MPS

DESIGNED: J. Herrmann

DATE: 9-15-03

MDOT Michigan Department of Transportation

Base map data obtained from the Michigan Center of Geographic information. Outfall locations taken with a handheld GPS unit. Accuracy is +- 10 m.

Michigan Department of Transportation

City of Flint
Storm Sewer Outfall Map

FIGURE
10-8

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Table 10-4 City of Flint Outfall Information

Map ID	ID	Latitude	Longitude	Receiving Water Body	Outfall Size (mm)
50	25132-12-A000N	43.02587	-83.68048	Name Unknown	1524
51	25081-80-A010N	43.01374	-83.6869	Name Unknown	1524
52	25081-85-A000N	43.01488	-83.68463	Name Unknown	305
53	25132-15-A000N	43.03111	-83.67834	Gilkey Creek	305
54	25132-14-A000N	43.03111	-83.67834	Gilkey Creek	1289x1829
55	25081-75-A010N	43.01279	-83.68895	Name Unknown	305
56	25132-10-A000N	43.00361	-83.67694	Thread Creek	610
57	25132-05-A000N	43.00333	-83.67722	Thread Creek	1219
58	25081-60-A000N	43.00823	-83.69769	Swartz Creek	762
59	25132-03-A000N	42.9896	-83.68193	Name Unknown	305
60	25132-25-A000N	43.03889	-83.67722	Flint River	1524
61	25084-35-A000N	43.00599	-83.68723	Name Unknown	305
62	25132-04-A000N	43.00155	-83.6754	Thread Lake	305
63	25132-20-A000N	43.03111	-83.67861	Gilkey Creek	610
64	25132-22-A000N	43.02	-83.6780	Name Unknown	N/A
65	25084-40-A000N	43.01108	-83.67067	Gilkey Creek	610
66	25132-24-A000N	43.0382	-83.6771	Flint River	1067
67	25084-63-A000N	43.01049	-83.65608	Robinson Drain	305
68	25081-55-A000N	43.00823	-83.69769	Swartz Creek	305
69	25081-50-A000N	43.00015	-83.01163	Swartz Creek	457
70	25081-40-A050N	43.0087	-83.70636	Flint River	610
71	25081-35-A010N	43.00693	-83.70938	Flint River	305
72	25081-30-A000N	43.00698	-83.71094	Name Unknown	381
73	25081-25-A010N	43.00546	-83.71478	Flint River	305
74	25081-20-A000N	43.00481	-83.71706	Flint River	305
75	25081-15-A000N	43.00361	-83.72041	Swartz Creek	381
76	25081-10-A000N	43.00283	-83.73564	Swartz Creek	762
77	25132-23-A000N	43.03329	-83.67636	Name Unknown	N/A
78	25085-34-A000N	43.0055	-83.6881	Name Unknown	532
79	25085-10-A000N	42.99263	-83.7101	Carman Drain/ Swartz Creek	305
80	25085-14-A000N	42.9971	-83.7078	Name Unknown	305
81	25085-15-A000N	42.99747	-83.70705	Name Unknown	N/A
82	25072-40-A000N	43.03167	-83.65556	Name Unknown	305
83	25085-16-A000N	42.9971	-83.7077	Name Unknown	610
84	25081-05-A000N	4300277	-83.74124	Swartz Creek	153
85	25085-17-A000N	42.9974	-83.7075	Name Unknown	305

Map ID	ID	Latitude	Longitude	Receiving Water Body	Outfall Size (mm)
86	25085-20-A000N	42.9999	-83.70565	Swartz Creek	914
87	25085-25-A000N	43.00053	-83.70382	Swartz Creek	610
88	25085-30-A000N	43.0005	-83.70329	Swartz Creek	914
89	25085-31-A000N	43.0035	-83.69386	Thread Creek	610
90	25084-61-A000N	43.01083	-83.6582	Name Unknown	305
91	25085-33-A000N	43.00493	-83.68917	Thread Creek	305
92	25084-50-A000N	43.01093	-83.66928	Gilkey Creek	762
93	25085-36-A000N	43.0063	-83.6866	Creek	838
94	25085-37-A000N	43.00883	-83.68162	Name Unknown	Varies
95	25132-00-A000N	42.98137	-83.68185	Flow Continues into Storm Sewer System	915
96	25132-01-A000N	42.98465	-83.68188	Flow Continues into Storm Sewer System	305
97	25132-02-A000N	42.98862	-83.68213	Flow Continues into Storm Sewer System	1219
98	25085-05-A000N	42.99263	-83.7101	Carman Drain/Swartz Creek	1981
99	25085-04-A000N	42.99263	-83.7101	Carman Drain/Swartz Creek	305
100	25085-00-A000N	42.9926	-83.7101	Swartz Creek	1372
101	25084-64-A000N	43.01026	-83.65524	Robinson Drain	610
102	25084-62-A000N	43.01075	-83.6572	Robinson Drain	381
103	25084-60-A000N	43.01096	-83.65938	Robinson Drain	300x75
104	25084-55-A000N	43.01123	-83.66113	Robinson Drain	2250
105	25085-32-A000N	43.0026	-83.6937	Thread Creek	610
106	25132-66-A000N	43.05437	-83.67455	Name Unknown	305
107	25061-05-A000N	42.9731	-83.7625	Swartz Creek	457
108	25061-00-A000N	42.97303	-83.76331	Swartz Creek	381
109	25031-10-A000N	42.97322	-83.7281	Drain	381
110	25031-00-A000N	42.97301	-83.72805	Drain	457
111	25081-00-A000N	43.0092	-83.69812	Swartz Creek	457
112	25072-50-A000N	43.03583	-83.65556	Name Unknown	381
113	25132-90-A000N	43.07091	-83.68456	Name Unknown	305
114	25061-10-A000N	42.97287	-83.76109	Swartz Creek	1219
115	25132-68-A000N	43.05382	-83.67458	Name Unknown	457
116	25031-05-A000N	42.97315	-83.72803	Creek	914
117	25132-65-A000N	43.05257	-83.66997	Flint River	1219
118	25132-60-A000N	43.04694	-83.67333	Flint River	1524
119	25132-55-A000N	43.04667	-83.67917	Flint River	1524x2287
120	25132-50-A100N	43.045	-83.677	Flint River	2439
121	25132-45-A000N	43.04417	-83.67528	Flint River	1829
122	25132-40-A000N	43.04361	-83.67555	Flint River	1829
123	25132-35-A000N	43.04278	-83.67583	Flint River	1524
124	25132-70-A000N	43.06112	-83.67648	Name Unknown	1524

Map ID	ID	Latitude	Longitude	Receiving Water Body	Outfall Size (mm)
125	25072-24-A020N	42.990	-83.690	Robinson Drain	610
126	25072-30-A000N	43.02222	-83.65472	Gilkey Creek	457
127	25061-15-A000N	42.97327	-83.7285	Drain	1400
128	25072-35-A000N	43.02328	-83.65435	Gilkey Creek	914
129	25072-45-A000N	43.03361	-83.65556	Name Unknown	609.6
130	25132-30-A000N	43.04028	-83.67611	Flint River	915
131	25072-25-A000N	43.01778	-83.65528	Gilkey Creek	1067
132	25072-53-A000N	43.04005	-83.65677	Name Unknown	610
133	25072-55-A000N	43.05278	-83.66827	Flint River	762
134	25072-15-A000N	42.99883	-83.65388	Thread Creek	457
135	25072-60-A000N	43.05325	-83.66888	Flint River	610
136	25072-68-A000N	43.06493	83.67387	Name Unknown	305
137	25072-70-A000N	43.07073	83.67437	Name Unknown	762
138	25072-75-A000N	43.07531	83.67472	Name Unknown	305
139	25072-10-A000N	42.99833	-83.65361	Thread Creek	457.2
140	25072-05-A000N	42.99861	-83.65389	Thread Creek	762
141	25072-00-A000N	42.99833	-83.65389	Thread Creek	1524
142	25072-51-A000N	43.03712	-83.65657	Name Unknown	610

10.4. Grand Rapids – Grand Region/Grand Rapids TSC

The City of Grand Rapids is located in the Central Western portion of Michigan's Lower Peninsula in Kent County. Within the City limits, MDOT facilities include U.S. 131, I-96, I-196, M-45, M-16, M-11, and Ottawa Drive. These state roads are managed by the Grand Rapids regional office and serviced by the Grand Rapids TSC.

A total of 121 outfalls were identified in the City of Grand Rapids, as shown in Figure 10-11, only one illicit connection and one suspected illicit discharge were found. These illicit connections/discharges are described in more detail below. To date all outfalls have been visited.

41014-70-A000N

Location This outfall discharges into a drain south of the intersection of Leonard Street and Plainfield Avenue (see Figure 10-9).

Description of Problem The drainage network collects storm water from part of 131 Business Loop and the City of Grand Rapids. Samples taken from the manhole north of the Leonard Street and Plainfield Avenue intersection showed elevated levels of *E. coli* and Fluoride.

Responsible Party City of Grand Rapids

Follow up Actions Taken The City of Grand Rapids was notified of this illicit connection on October 9, 2002. The City stated that this is currently one of their Combined Sewer Overflows (CSOs).

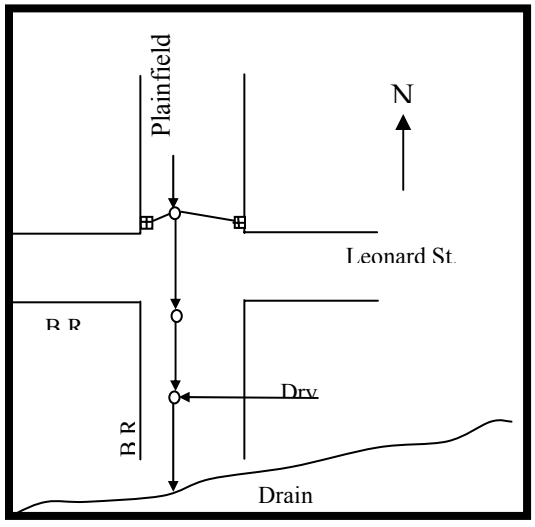


Figure 10-9 Outfall Number 41014-70-A000N in the City of Grand Rapids

41051-52-A000N

Location The outfall is located just south of the Leonard Street and M-44 intersection (see Figure 10-10).

Description of Problem The drainage is collected from M-44 and discharged out of the MDOT right-of-way east of M-44. During the investigation high levels of TOCs were detected. The apparent source is the carwash of the Amoco gas station/car wash on the corner of Leonard Street and M-44. Wash water from the carwash is draining overland, bypassing an inlet grate, and reaching the storm sewer system.

Responsible Parties City of Grand Rapids and Amoco carwash

Follow up Actions Taken The City of Grand Rapids was notified of this illicit connection in October 9, 2002. The City notified the landowner to maintain facilities and cease discharges to the storm sewer system.

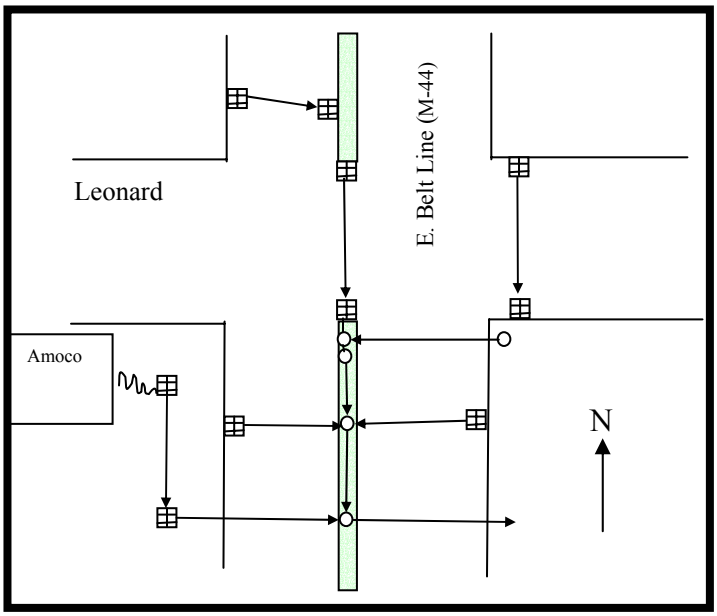


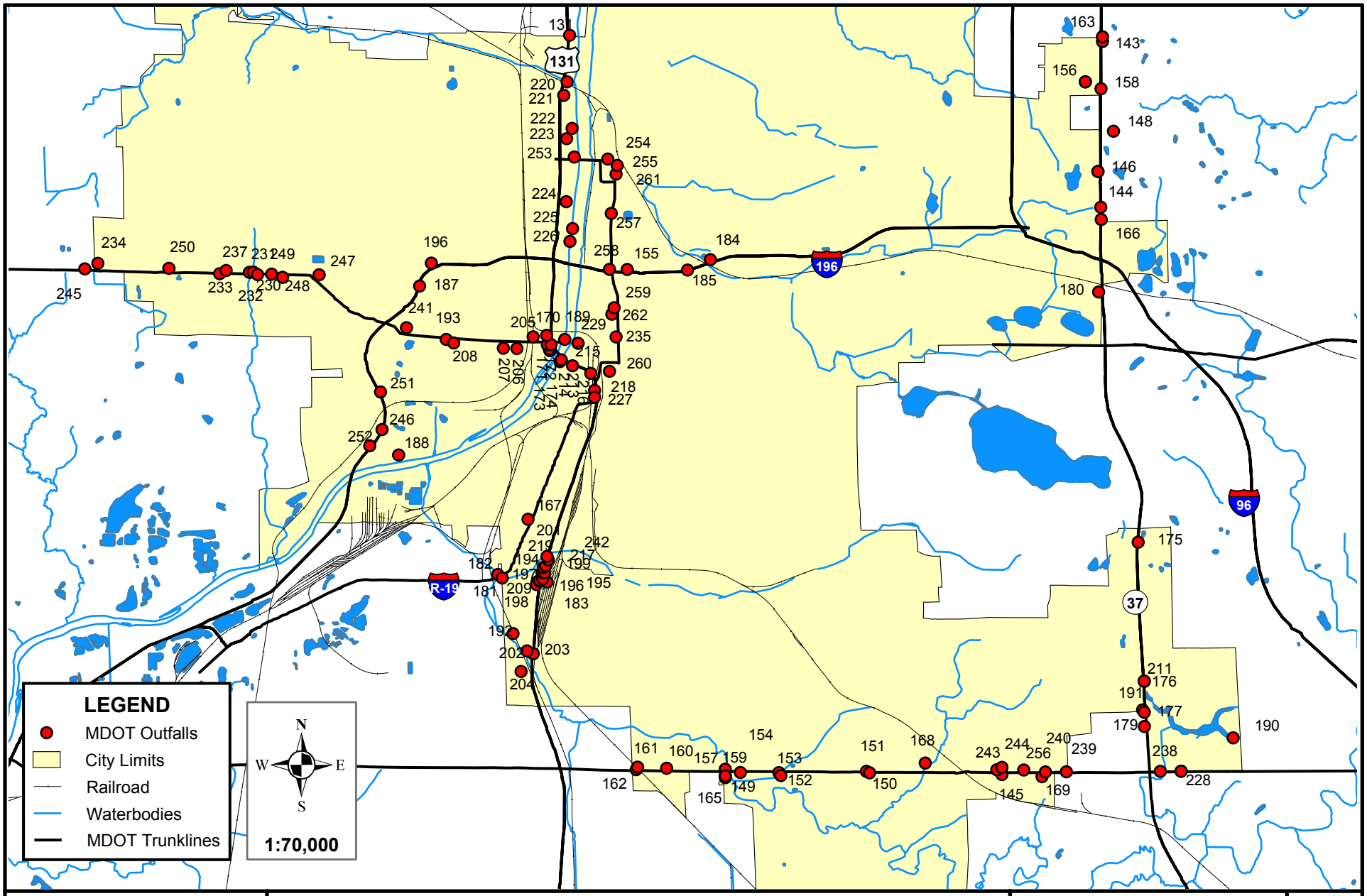
Figure 10-10 Outfall Number 41051-52-A000N in the City of Grand Rapids

The MPO that the MDOT coordinates events with in Grand Rapids is the Grand Valley Metro Council.

Contact information for the local community regarding storm water issues and concerns are included in Table 10-5.

Table 10-5 Local Contact Information for Grand Rapids

Name	Organization	Phone	Email
Seth Phillips	MDOT Storm Water Program Coordinator	(517) 373-1908	phillips@michigan.gov
Todd Neiss	MDOT Grand Region Storm Water Coordinator	(616) 451-3091	neisst@michigan.gov
John Schaut	City of Grand Rapids	(616) 456-4637	jschaut@epd.grand-rapids.mi.us
Mia Debruyne	Robert B. Annis Water Resources Institute at Grand Valley State University	(616) 895-2527	debruynm@gvsu.edu



FILE NAME: O:/03260304/03/Annual Report Maps/Grand Rapids.mdx

TETRA TECH MPS

DESIGNED: J. Herrmann | DATE: 9-16-03

MDOT Michigan Department of Transportation

Base map data obtained from the Michigan Center of Geographic information. Outfall locations taken with a handheld GPS unit. Accuracy is +- 10 m.

Michigan Department of Transportation

City of Grand Rapids
Storm Sewer Outfall Map

FIGURE
10-11

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Table 10-6 City of Grand Rapids Outfall Information

Map ID	ID	Latitude	Longitude	Receiving Water Body	Outfall Size (mm)
143	41051-75-A020N	42.99833	-85.59028	Name Unknown	457
144	41051-45-A000N	42.97885	-85.59068	Coldbrook Creek	762
145	41063-37-A000N	42.91222	-85.60694	Natural Drain	305
146	41051-50-A000N	42.98306	-85.59111	Name Unknown	305
147	41051-52-A000N	42.98306	-85.59111	Name Unknown	457
148	41051-55-A000N	42.98778	-85.58861	Name Unknown	762
149	41063-11-A000N	42.912	-85.6511	Plaster Creek	Swale from 203.2
150	41063-35-A000N	42.9125	-85.62805	Name Unknown	305
151	41063-34-B000N	42.91267	-85.62856	Name Unknown	305
152	41063-30-A000N	42.91222	-85.64222	Creek	610
153	41063-29-A000N	42.91257	-85.64253	Whiskey Creek	305
154	41063-25-A010N	42.9126	-85.6487	Plaster Creek	381
155	41029-45-A000N	42.9718	-85.6664	Flow continues into Storm Sewer System	610
156	41051-65-A000N	42.99361	-85.59306	Name Unknown	762
157	41063-15-A000N	42.91222	-85.65111	Plaster Creek	610
158	41051-60-A000N	42.99278	-85.59055	Name Unknown	457
159	41063-10-A000N	42.913	-85.65111	Plaster Creek	914
160	41063-05-A000N	42.91313	-85.66045	Name Unknown	457
161	41063-01-A000N	42.91328	-85.66508	Name Unknown	457
162	41063-00-A000N	42.913	-85.6653	Name Unknown	762
163	41051-80-A000N	42.99889	-85.59028	Name Unknown	610
164	41051-66-A020N	42.99361	-85.59306	Name Unknown	610
165	41063-20-A000N	42.9122	-85.6511	Plaster Creek	610
166	41051-40-A000N	42.9774	-85.59063	Name Unknown	457
167	41042-20-A000N	42.94248	-85.6824	Flow continues into Storm Sewer System	153
168	41063-38-A000N	42.91361	-85.61916	Creek	381
169	41063-65-A000N	42.91195	-85.60056	Name Unknown	457
170	41131-89-A000N	42.9641	-85.6793	Grand River	N/A
171	41131-88-A000N	42.963	-85.6786	Grand River	1067
172	41131-87-A000N	42.963	-85.6792	Grand River	381
173	41131-86-A000N	42.9625	-85.6789	Grand River	300
174	41131-85-A000N	42.9623	-85.6788	Grand River	450
175	41051-15-A000N	42.93945	-85.585	Whiskey Creek	762
176	41051-12-A000N	42.92308	-85.58414	Whiskey Creek	762
177	41051-10-A010N	42.91945	-85.58417	Creek	305
178	41029-35-A000N	42.97263	-85.69769	Flow continues into Storm Sewer System	610
Map	ID	Latitude	Longitude	Receiving Water Body	Outfall Size (mm)

ID					
179	41051-00-A000N	42.91778	-85.58417	Creek	1372
180	41051-25-A000N	42.96889	-85.59111	Storm drains outside of city limits	305
181	41042-10-A000N	42.93559	-85.68657	Flow continues into Storm Sewer System	381
182	41042-05-A000N	42.936	-85.68729	Plaster Creek	305
183	41042-00-A000N	42.9351	-85.6794	Plaster Creek	305
184	41029-55-A000N	42.9729	-85.6531	Cold Brook Drain	1067
185	41029-50-A000N	42.9717	-85.65677	Flow continues into Storm Sewer System	762
186	41029-40-A000N	42.970	-85.886	Grand River	1524
187	41029-30-A000N	42.96995	-85.69958	Flow continues into Storm Sewer System	457
188	41029-25-A000N	42.9501	-85.70303	Flow continues into Storm Sewer System	762
189	41014-10-A000N	42.9636	-85.67641	Grand River	762
190	41051-20-A000N	42.91639	-85.57	Flow continues into an open area	1067
191	41051-05-A000N	42.91972	-85.58444	Name Unknown	153
192	41131-20-A000N	42.92905	-85.68488	Plaster Creek	457
193	41081-60-A000N	42.96367	-85.69537	Name Unknown	686
194	41131-27-A000N	42.9362	-85.6802	Silver Creek	N/A
195	41131-26-A000N	42.9355	-85.6801	Silver Creek	N/A
196	41131-25-A000N	42.9353	-85.6806	Silver Creek	N/A
197	41131-24-A000N	42.9352	-85.6806	Silver Creek	N/A
198	41131-23-A000N	42.9348	-85.6811	Silver Creek	N/A
199	41131-30-A000N	42.937	-85.6796	Silver Creek	N/A
200	41131-21-A000N	42.935	-85.670	Silver Creek	N/A
201	41131-33-A000N	42.9381	-85.6794	Silver Creek	N/A
202	41131-15-A000N	42.927	-85.68266	Plaster Creek	305
203	41131-10-A000N	42.92667	-85.68166	Plaster Creek	914
204	41131-05-A000N	42.92458	-85.68362	Plaster Creek	305
205	41081-90-A010N	42.96393	-85.68147	Name Unknown	457
206	41081-80-B000N	42.96257	-85.68408	Name Unknown	914
207	41081-70-B000N	42.9626	-85.68623	Name Unknown	914
208	41081-65-A000N	42.96325	-85.69415	Name Unknown	533
209	41131-22-A000N	42.9351	-85.681	Silver Creek	N/A
210	41131-70-A000N	42.99937	-85.67545	Grand River	610
211	41063-55-A000N	42.92311	-85.58415	Name Unknown	305
212	41063-40-A010N	42.9127	-85.51745	Creek	610
213	41131-84-A000N	42.9612	-85.677	Grand River	N/A
214	41131-83-A000N	42.961	-85.6772	Grand River	N/A

Map ID	ID	Latitude	Longitude	Receiving Water Body	Outfall Size (mm)
215	41131-82-A000N	42.9605	-85.6752	Grand River	N/A
216	41131-81-A000N	42.9596	-85.6723	Grand River	N/A
217	41131-28-A000N	42.9362	-85.6798	Silver Creek	N/A
218	41131-79-A000N	42.9576	-85.6717	Grand River	N/A
219	41131-29-A000N	42.9368	-85.68	Silver Creek	N/A
220	41131-65-A000N	42.99389	-85.67588	Indian Creek	305
221	41131-60-A000N	42.9923	-85.67643	Name Unknown	381
222	41131-55-B000N	42.98841	-85.67512	Grand River	610
223	41131-52-A000N	42.9872	-85.676	Name Unknown	305
224	41131-50-B000N	42.9798	-85.67609	Grand River	762
225	41131-45-A000N	42.97663	-85.6751	Grand River	762
226	41131-40-A000N	42.97512	-85.67554	Grand River	305
227	41131-80-A000N	42.9568	-85.6717	Grand River	N/A
228	41063-90-A010N	42.9125	-85.57833	Whiskey Creek	533
229	41014-15-A000N	42.96315	-85.6743	Grand River	1524
230	41081-34-A010N	42.97137	-85.72546	Name Unknown	381
231	41081-33-A000N	42.97167	-85.72615	Name Unknown	457
232	41081-32-A000N	42.97163	-85.72675	Creek	457
233	41081-30-A000N	42.97149	-85.73151	Name Unknown	1067
234	41081-10-A000N	42.97275	-85.75097	Name Unknown	762
235	41014-30-A000N	42.96387	-85.66821	Flow continues into Storm Sewer System	457
236	41063-90-B000N	42.9125	-85.57833	Whiskey Creek	305
237	41081-31-A000N	42.97187	-85.73047	Name Unknown	305
238	41063-80-A000N	42.9125	-85.58167	Whiskey Creek	533
239	41063-75-A000N	42.9125	-85.59666	Name Unknown	305
240	41063-70-A000N	42.9125	-85.6	Name Unknown	457
241	41081-50-A000N	42.96505	-85.7017	Name Unknown	457
242	41131-31-A000N	42.9377	-85.6792	Silver Creek	N/A
243	41063-45-A000N	42.91278	-85.60775	Name Unknown	305
244	41063-60-A000N	42.91306	-85.60694	Creek	457
245	41081-05-A000N	42.9721	-85.75305	Retention Area	305
246	41029-10-A000N	42.9531	-85.70567	Creek that drains to Grand River	457
247	41081-45-A000N	42.97132	-85.71563	Name Unknown	762
248	41081-40-A000N	42.97104	-85.72147	Name Unknown	254
249	41081-35-A000N	42.97142	-85.7232	Name Unknown	610
250	41081-26-A000N	42.97213	-85.73962	Name Unknown	381
251	41029-20-A000N	42.95752	-85.70589	Flow continues into an open area	610
252	41029-05-A000N	42.95118	-85.70763	Creek that drains to Grand River	457

Map ID	ID	Latitude	Longitude	Receiving Water Body	Outfall Size (mm)
253	41014-75-A000N	42.98503	-85.67478	Grand River	914
254	41014-72-A020N	42.98478	-85.66942	Grand River	457
255	41014-70-A000N	42.98403	-85.66793	Drain	686
256	41014-60-A000N	42.91273	-85.60345	Flow continues into Storm Sewer System	457
257	41014-55-A000N	42.9784	-85.6689	Name Unknown	457
258	41014-50-A000N	42.97182	-85.66924	Flow continues into an open area	762
259	41014-45-A000N	42.9673	-85.6685	Flow continues into Storm Sewer System	762
260	41014-40-A000N	42.95984	-85.6693	Flow continues into Storm Sewer System	305
261	41014-65-A000N	42.98302	-85.66811	Coldbrook Drain	305
262	41014-35-A000N	42.96655	-85.66888	Flow continues into Storm Sewer System	414

10.5. Sterling Heights – Metro Region/Macomb TSC

Sterling Heights is located in the Southeastern portion of Michigan's Lower Peninsula in Macomb County in metro Detroit. The regional office responsible for M-53 and M-59 within the City of Sterling Heights is located in the City of Southfield. Thirty-six (36) confirmed outfalls exist along State roads in Sterling Heights as shown in Figure 10-12.

All field investigation for the City of Sterling Heights have been completed, no illicit connections or discharges were identified.

The MPO that the MDOT coordinates events with in Sterling Heights is the SEMCOG.

Contact information for the local community regarding storm water issues and concerns are included in Table 10-7.

Table 10-7 Local Contact Information for Sterling Heights

Name	Organization	Phone	Email
Seth Phillips	MDOT Storm Water Program Coordinator	(517) 373-1908	phillips@michigan.gov
Sharon Ferman	MDOT Metro Region Storm Water Coordinator	(248) 569-3103	fermans@michigan.gov
Tom Dehundt	City of Sterling Heights	(586) 446-2498	tdehondt@sterling-heights.net
Dan Sears	City of Sterling Heights	(586) 446-2498	dsears@sterling-heights.net
Meg Larson	Clinton River Watershed Council	(248) 853-9581	educator@crwc.org
Barbara Mathews	Macomb County Department of Public Works	(586) 466-4016	N/A

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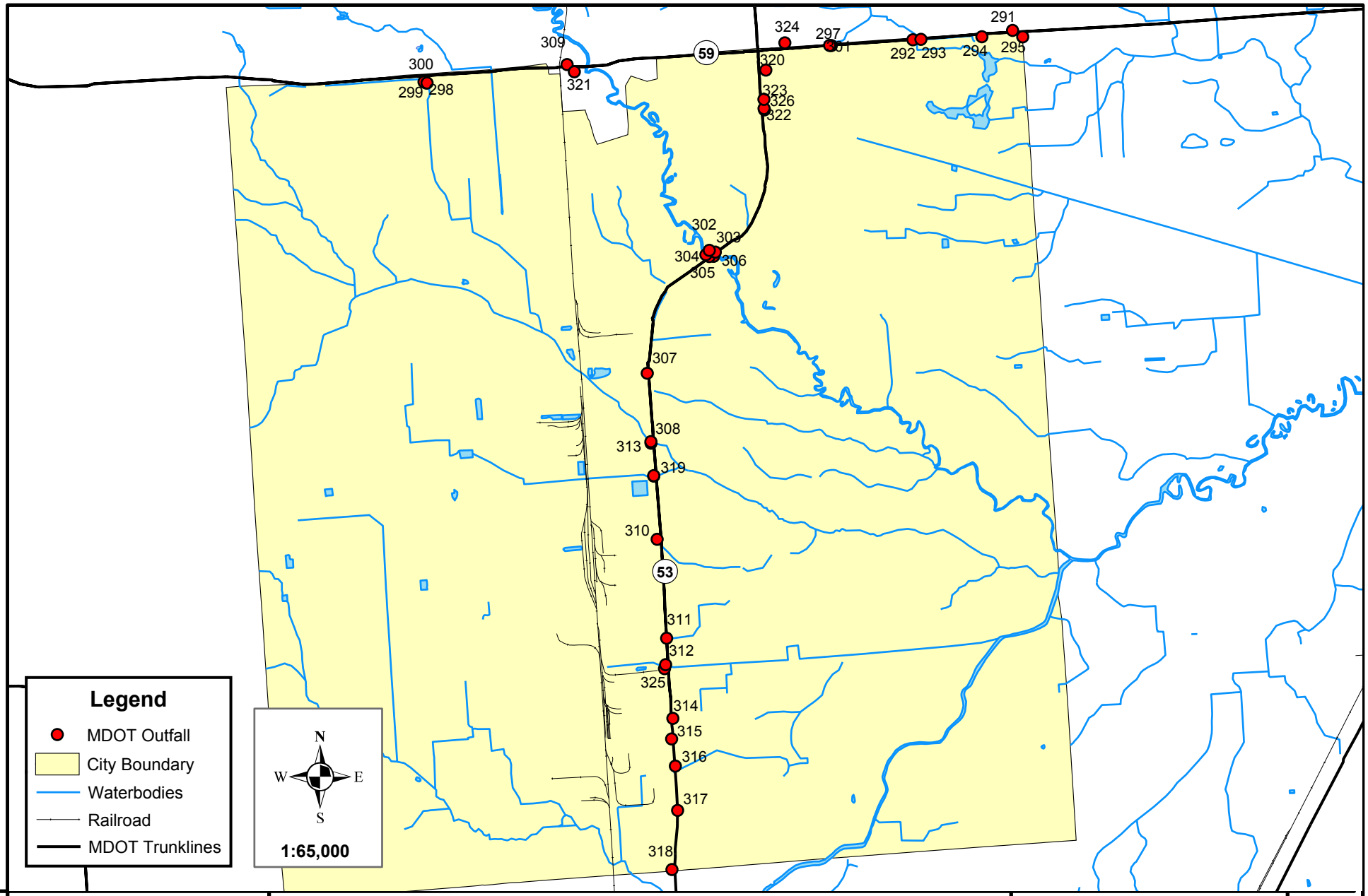

FILE NAME: O:/0326034/03/Annual Reports/Sterling Heights.mdx

TETRA TECH MPS

DESIGNED: J. Herrmann

DATE: 9-16-03

MDOT Michigan Department of Transportation

Base map data obtained from the Michigan Center of Geographic information. Outfall locations taken with a handheld GPS unit. Accuracy is +- 10 m.

Michigan Department of Transportation

City of Sterling Heights
Storm Sewer Outfall Map

FIGURE
10-12

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Table 10-8 City of Sterling Heights Outfall Information

Map ID	ID	Latitude	Longitude	Receiving Water Body	Outfall Size (mm)
291	50022-30-A000N	42.62738	-82.97476	St. Heights	457
292	50022-15-A000N	42.62675	-82.98956	Utica Drain	900
293	50022-20-A000N	42.62676	-82.98838	Utica Drain	600
294	50022-25-A000N	42.62681	-82.97935	St. Heights	900
295	50022-35-A000N	42.62663	-82.9733	St. Heights	762
296	50011-77-A000N	42.57996	-83.03023	Moore Drain	762
297	50022-10-A000N	42.62645	-83.00193	Foley Drain	1219
298	50023-15-A000N	42.62391	-83.0617	Crissman Dr	600
299	50023-05-A000N	42.62391	-83.06181	Crissman Dr	1450
300	50023-10-A000N	42.62403	-83.06215	Crissman Dr	580
301	50022-08-A000N	42.62643	-83.00166	Foley Drain	1220
302	50011-95-A000N	42.60448	-83.02081	Clinton Riv	1000x1420
303	50011-94-A000N	42.60426	-83.01993	Clinton Riv	1000x1420
304	50011-93-A000N	42.60401	-83.02133	Vokes Dr	590x3000
305	50011-92-A000N	42.6038	-83.02085	Clinton Riv	305
306	50011-91-A000N	42.6038	-83.0202	Clinton Riv	670x7100
307	50011-89-A000N	42.59125	-83.03063	St. Heights	914
308	50011-86-A000N	42.58375	-83.03046	Plumbrook Dr	915
309	50021-05-A000N	42.62538	-83.04088	Green's Dr	2080
310	50011-74-A000N	42.57303	-83.03005	St.Heights	914
311	50011-71-A000N	42.56215	-83.02916	Schuer Drain	1829
312	50011-68-A000N	42.55925	-83.02946	St. Relief Dr	457
313	50011-83-A000N	42.58358	-83.03046	Plumbrook Dr	305
314	50011-62-A000N	42.55335	-83.02866	Trost Drain	914
315	50011-59-A000N	42.5511	-83.02896	St. Heights	1524
316	50011-56-A000N	42.54811	-83.02855	Union Drain	1067
317	50011-52-A000N	42.54325	-83.02845	St. Heights	400
318	50011-50-A000N	42.53678	-83.0296	St. Heights	800
319	50011-80-A000N	42.58001	-83.03023	Moore Drain	610
320	50021-20-A000N	42.624	-83.01148	Foley Drain	1219
321	50021-10-A000N	42.62456	-83.03985	Green's Dr	914
322	50021-15-A000N	42.61965	-83.0119	Klieno Rel	1200
323	50021-18-A000N	42.6208	-83.01193	Klieno Rel	1800
324	50022-05-A000N	42.62691	-83.00853	Utica Drain	381
325	50011-65-A000N	42.55883	-83.02965	St. Relief Dr	762
326	50021-16-A000N	42.6198	-83.01196	Klieno Rel	305

10.6. Warren – Metro Region/Macomb TSC

Warren is located in the Southeastern portion of Michigan's Lower Peninsula in Macomb County in metro Detroit. Within the City of Warren, the state owns and manages from its regional office in Southfield, I-696, M-3, M-53, M-97, and M-102.

A total of 51 outfalls were identified and investigated along State roads in Warren. The field investigation of these outfalls has been completed. Out of the 51 outfalls, 9 were found to have illicit connections or discharges. In the 2001-2002 annual report 6 of the 9 illicit connections/discharges were reported to be removed. The following three illicit connections were addressed during this reporting period or are still active.

50061-70-A000N

Location	This outfall is located on the I-696 South Service Drive at the Loraine Drain.
Description of Problem	Sampling within this system showed high levels of *E. Coli*. A source could not be identified, which suggests it is an illicit discharge.
Responsible Party	City of Warren
Follow-up Actions Taken	The city was notified of this condition on 9/18/01. The city is continuing to search for the source.

50061-94-C010N

Location	A catch basin located on I-696 North Service Drive at 14671 Palco Drive.
Description of Problem	Runoff from a horse stable and manure pile was found to be entering the catch basin.
Responsible Party	City of Warren and the horse stable
Follow-up Actions Taken	The City was notified on 10/1/01. No actions will be necessary at this time, as the area will be undergoing zoning changes, which will remove the agricultural runoff.

50061-94-F050N

Location	On I-696 North Service Drive an illicit discharge was found.
Description of Problem	The potential pollutant is oil/hydraulic fluid being washed into the storm sewer system.
Responsible Party	Radar Industries at 27101 Groesbeck Drive
Follow-up Actions Taken	The city was notified on 10/01/01. The discharge has been eliminated by changing operating procedures.

The MPO that the MDOT coordinates events with in Warren is the SEMCOG.

Contact information for the local community regarding storm water issues and concerns are included in Table 10-9.

Table 10-9 Local Contact Information for Warren

Name	Organization	Phone	Email
Seth Phillips	MDOT Storm Water Program Coordinator	(517) 373-1908	phillips@michigan.gov
Sharon Ferman	MDOT Metro Region Storm Water Coordinator	(248) 569-3103	fermans@michigan.gov
Richard Doherty	City of Warren	(586) 759-9300	N/A
Todd Schaedig	City of Warren	(586) 759-9300	N/A
Meg Larson	Clinton River Watershed Council	(248) 853-9581	educator@crwc.org
Barbara Mathews	Macomb County Department of Public Works	(586) 466-4016	N/A

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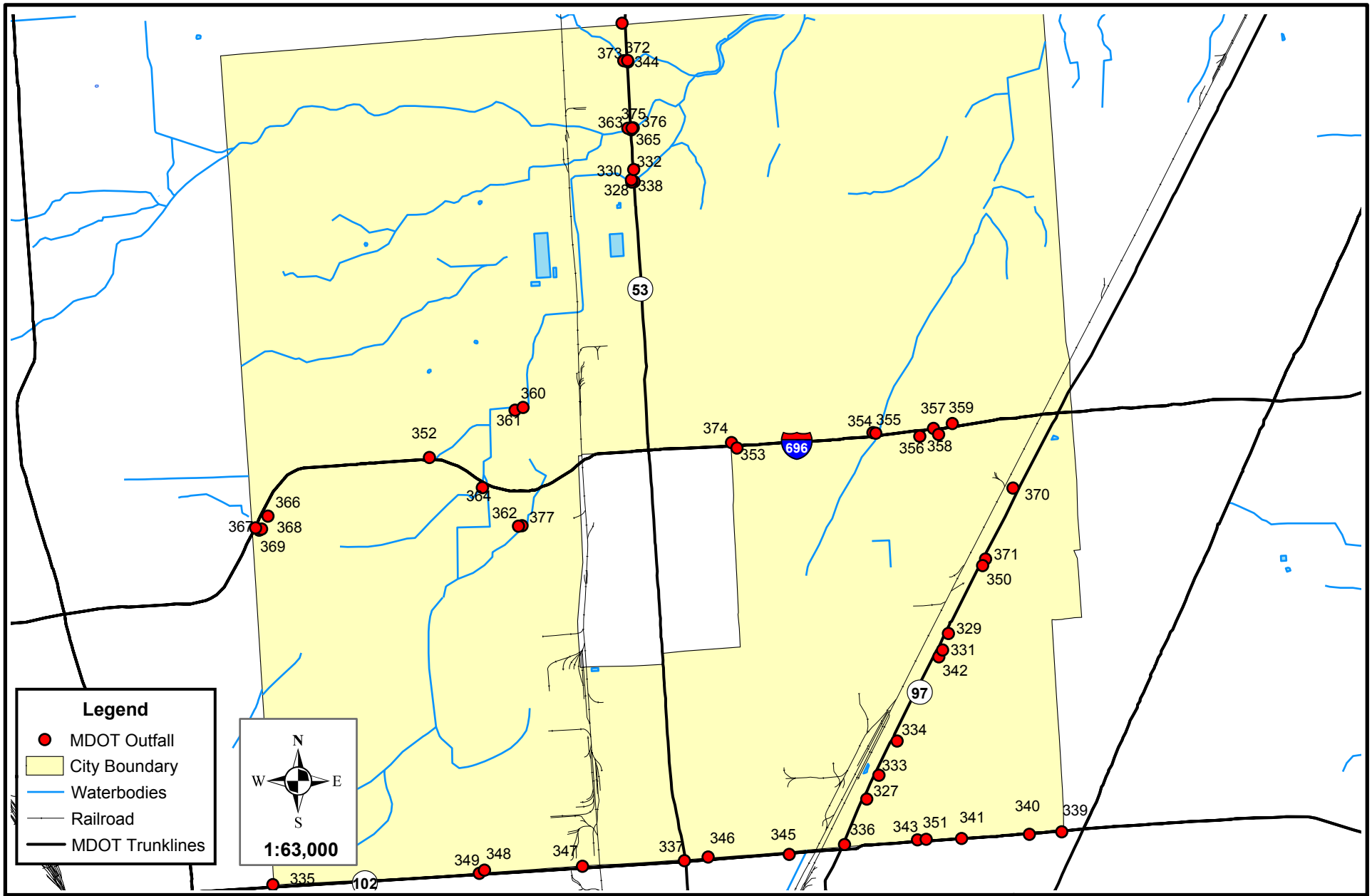

TETRA TECH MPS

DESIGNED: J. Herrmann

DATE: 9-16-03

MDOT Michigan Department of Transportation

Base map data obtained from the Michigan Center of Geographic information. Outfall locations taken with a handheld GPS unit. Accuracy is +- 10 m.

Michigan Department of Transportation

City of Warren
Storm Sewer Outfall Map

FIGURE

10-13

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Table 10-10 City of Warren Outfall Information

Map ID	ID	Latitude	Longitude	Receiving Water Body	Outfall Size (mm)
327	50031-05-A000N	42.45403	-82.99873	Warren	1700
328	50011-21-A000N	42.51998	-83.02904	Bear Crk Dr	305
329	50031-30-A000N	42.47118	-82.98628	Schoenherr	1524
330	50011-24-A000N	42.52022	-83.02907	Bear Crk Dr	457
331	50031-20-A000N	42.46945	-82.98718	Schoenherr	1372
332	50011-27-A000N	42.52129	-83.02869	Warren	457
333	50031-08-A000N	42.45649	-82.99689	Warren	710
334	50031-10-A000N	42.46003	-82.99413	Warren	1067
335	82143-05-A000N	42.44721	-83.08361	Detroit	914
336	82143-30-A000N	42.44931	-83.00213	Schoenherr	1676
337	50011-05-A000N	42.4482	-83.02498	Detroit	457
338	50011-18-A000N	42.52001	-83.02869	Bear Crk Dr	2134
339	82143-45-A000N	42.44983	-82.97118	Eastpointe	381
340	82143-40-A000N	42.4497	-82.9758	Detroit	762
341	82143-35-A000N	42.4495	-82.98546	Detroit	914
342	50031-15-A000N	42.46875	-82.98776	Schoenherr	1676
343	82143-32-A000N	42.44953	-82.99173	Detroit	305
344	50011-42-A000N	42.53268	-83.02896	Beaver Creek	305
345	82143-28-A000N	42.44848	-83.01005	Detroit	381
346	82143-25-A000N	42.4485	-83.02158	Detroit	1676
347	82143-20-A000N	42.448	-83.0395	Detroit	1524
348	82143-15-A000N	42.44795	-83.05345	Warren	1190
349	82143-10-A000N	42.44764	-83.05421	Detroit	1372
350	50031-34-A000N	42.47821	-82.98107	Ten Mile Dr	1219
351	82143-33-A000N	42.44955	-82.9905	Detroit	305
352	50061-25-A000N	42.49168	-83.05921	Grobbel Rel	2590
353	50061-70-A000N	42.49153	-83.01541	Lorraine Dr	1676
354	50061-75-A000N	42.49265	-82.99598	Macomb Co	1829
355	50061-80-A000N	42.49258	-82.99558	Macomb Co	686
356	50061-85-A000N	42.49208	-82.98935	Schoenherr	1400
357	50061-88-A000N	42.49286	-82.98735	Schoenherr	457
358	50061-90-A000N	42.49221	-82.98666	Schoenherr	2000
359	50061-94-A000N	42.49331	-82.98465	Schoenherr	1770
360	50061-60-A000N	42.49661	-83.04565	Bear Crk Dr	457
361	50061-50-A000N	42.49635	-83.04678	Bear Crk Dr	610
362	50061-40-A000N	42.48411	-83.04688	Bear Crk Dr	1829
363	50011-36-A000N	42.52568	-83.02931	Red Run Dr	650

Map ID	ID	Latitude	Longitude	Receiving Water Body	Outfall Size (mm)
364	50061-30-A000N	42.48831	-83.05183	Bear Crk Dr	1829
365	50011-30-A000N	42.5255	-83.02883	Red Run Dr	457
366	50061-20-A000N	42.4861	-83.08248	Warren	457
367	50061-15-A000N	42.48491	-83.08429	Sharkey Dr	305
368	50061-10-A000N	42.48476	-83.08346	Sharkey Dr	305
369	50061-05-A000N	42.48465	-83.0838	Sharkey Dr	1067
370	50031-40-A000N	42.48627	-82.97636	Macomb Co	2000
371	50031-35-A000N	42.4789	-82.98061	Ten Mile Dr	1372
372	50011-48-A000N	42.53283	-83.029	Beaver Creek	381
373	50011-45-A000N	42.53281	-83.02955	Beaver Creek	890
374	50061-65-A000N	42.49213	-83.01616	Lorraine Dr	610
375	50011-39-A000N	42.52568	-83.02871	Red Run Dr	850
376	50011-33-A000N	42.5257	-83.02855	Red Run Dr	457
377	50061-35-A000N	42.48415	-83.04638	Bear Crk Dr	1219